

WHAT IS CLAIMED IS:

1. A heating apparatus comprising:

a heat unit that generates heat in response to energization; and

5 an energization unit that supplies AC power to the heat unit and energizes the heat unit discontinuously in a pulsatile manner at least when energization of the heat unit is started;

wherein the energization unit turns on and off a control signal twice or more and sets an on and off period defined by  
10 sum of an on time and an off time of the control signal to a period not matching an integral multiple of a half the period of the AC power; and

wherein the energization unit is configured to energize the heat unit when a control signal is on and when a voltage  
15 value of an AC power crosses zero and to stop energizing the heat unit when the control signal is off and when the voltage value of the AC power crosses zero.

2. The heating apparatus as claimed in claim 1,

20 wherein the energization unit sets the on time of the control signal to a time not matching the time of an integral multiple of a half the period of the AC power supply.

3. The heating apparatus as claimed in claim 2,

25 wherein the energization unit sets the on time of the

control signal to a time shorter than the time of a half the period of the AC power supply.

4. The heating apparatus as claimed in claim 1,

5 wherein the energization unit sets the off time of the control signal to a time not matching the time of an integral multiple of a half the period of the AC power supply.

5. The heating apparatus as claimed in claim 4,

10 wherein the energization unit sets the off time of the control signal to a time one to six times the time of a half the period of the AC power supply.

6. The heating apparatus as claimed in claim 1,

15 wherein the energization unit prolongs the on time of the control signal with the passage of time from the energization start time.

7. A heating apparatus comprising:

20 a heat unit that generates heat in response to energization; and

an energization unit that supplies AC power to the heat unit and energizes the heat unit discontinuously in a pulsatile manner at least when energization of the heat unit is started;

25 wherein the energization unit turns on and off a control

signal and detects a voltage value of the AC power crossing zero and switches on and off the control signal based on the detection result; and

wherein the energization unit is configured to energize  
5 the heat unit when a control signal is on and when a voltage value of an AC power crosses zero and to stop energizing the heat unit when the control signal is off and when the voltage value of the AC power crosses zero.

10 8. The heating apparatus as claimed in claim 7,

wherein the energization unit counts the number of times the zero crossing detection unit has detected the voltage value of the AC power supply crossing zero and determines whether to switch on/off the control signal on the basis of the counted  
15 number.

9. The heating apparatus as claimed in claim 8,

wherein the energization unit increases the number of count times necessary to switch the control signal from on to  
20 off according to a time elapsed from the energization start time.

10. The heating apparatus as claimed in claim 1, comprising:  
an integrated control unit;

25 wherein the heat unit includes a plurality of heat units

each provided with the energization unit;

the energization unit includes a plurality of energization units; and

the integrated control unit controls the plurality of energization units so that an on state does not continue for the result of superposing the control signals generated by the plurality of energization unit.

11. The heating apparatus as claimed in claim 10,

wherein the integrated control unit matches periods and phases of the control signals generated by the plurality of energization units so that the on state does not continue for the result of superposing the control signals.

12. The heating apparatus as claimed in claim 10,

wherein the integrated control unit further controls the plurality of energization units so as to turn on and off the control signals in order.

13. The heating apparatus as claimed in claim 7, comprising:  
an integrated control unit;

wherein the heat unit includes a plurality of heat units each provided with the energization unit;

the energization unit includes a plurality of energization units; and

the integrated control unit controls the plurality of energization units so that an on state does not continue for the result of superposing the control signals generated by the plurality of energization unit.

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14. The heating apparatus as claimed in claim 13,

wherein the integrated control unit matches periods and phases of the control signals generated by the plurality of energization units so that the on state does not continue for  
10 the result of superposing the control signals.

15. The heating apparatus as claimed in claim 13,

wherein the integrated control unit further controls the plurality of energization units so as to turn on and off the  
15 control signals in order.

16. The heating apparatus as claimed in claim 1, further comprising a CPU turning on and off the control signal.

20 17. The heating apparatus as claimed in claim 7, further comprising a CPU turning on and off the control signal.

18. An image formation apparatus, comprising:

a heat unit that generates heat in response to energization  
25 to heat a toner image formed on a recording medium for fixing

the toner image on the recording medium; and

an energization unit that supplies AC power to the heat unit and energizes the heat unit discontinuously in a pulsatile manner at least when energization of the heat unit is started;

5 wherein the energization unit turns on and off a control signal twice or more and sets an on and off period defined by sum of an on time and an off time of the control signal to a period not matching an integral multiple of a half the period of the AC power; and

10 wherein the energization unit is configured to energize the heat unit when a control signal is on and when a voltage value of an AC power crosses zero and to stop energizing the heat unit when the control signal is off and when the voltage value of the AC power crosses zero.

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19. An image formation apparatus, comprising:

a heat unit that generates heat in response to energization to heat a toner image formed on a recording medium for fixing the toner image on the recording medium; and

20 an energization unit that supplies AC power to the heat unit and energizes the heat unit discontinuously in a pulsatile manner at least when energization of the heat unit is started;

wherein the energization unit turns on and off a control  
25 signal and detects a voltage value of the AC power crossing

zero and switches on and off the control signal based on the detection result; and

wherein an energization control unit configured to energize the heat unit when a control signal is on and when  
5 a voltage value of an AC power crosses zero and to stop energizing the heat unit when the control signal is off and when the voltage value of the AC power crosses zero.

20. The heating apparatus as claimed in claim 12,  
10 wherein the integrated control unit controls the plurality of energization units so as to turn on and off either one of control signals twice or more and afterwards turn on and off either one of the other control signals twice or more.

15 21. The heating apparatus as claimed in claim 15,  
wherein the integrated control unit controls the plurality of energization units so as to turn on and off either one of control signals twice or more and afterwards turn on and off either one of the other control signals twice or more.

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22. The heating apparatus as claimed in claim 12,  
wherein the integrated control unit controls the plurality of energization units so as to turn and off, during  
a time from off timing of either one of control signals to on  
25 timing of the control signal, each one of the other control

signals once.

23. The heating apparatus as claimed in claim 15,

wherein the integrated control unit controls the  
5 plurality of energization units so as to turn and off, during  
a time from off timing of either one of control signals to on  
timing of the control signal, each one of the other control  
signals once.